A BRIEF REVISION OF THE FOUR-FINGERED MEMBERS OF THE GENUS *LEIOLOPISMA* (LACERTILIA)

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Text fig. 1-4.

Several specimens belonging to the "Hetcropus" subgroup of this genus were collected in 1948 by the National Geographic Society, Smithsonian Institution and Commonwealth Government Expedition to Arnhem Land. Considerable difficulty was experienced in identifying these specimens for inclusion in the official report on the expedition, and therefore a brief revision of the group, characterized within the genus by the presence of 4 + 5 digits and an undivided fronto-parietal, has been compiled in an endeavour to clarify the taxonomy. This work has been handicapped by the inadequacy of the material and data available, the inconstancy of certain characters in some species, but apparent constancy in others, necessitating the examination of a large number of specimens of all recognizable forms. Until more extensive collections are made, the distribution and interrelationship of the twelve Australian lizards recognized in this work cannot be determined satisfactorily.

The following abbreviations of Museum titles have been utilized to indicate the institution in which each specimen is housed: "U.S.N.M.," United States National Museum, Washington; "M.C.Z.," Museum of Comparative Zoology, Harvard; "A.M.," Australian Museum, Sydney; "S.A.M.," South Australian Museum, Adelaide; "Q.M.," Queensland Museum, Brisbane; and "M.M.," Macleay Museum, University of Sydney.

I wish to acknowledge my appreciation of the co-operation of Mr. G. Mack, Director, Queensland Museum, Brisbane, and Messrs. J. Henry and S. J. Copland of the Macleay Museum, University of Sydney, in making the De Vis and Macleay type material, together with their opinions thereon, available for my examination. Also, I am grateful to Mr. Arthur Loveridge, of the Museum of Comparative Zoology, Harvard, for his assistance in obtaining the loan of two specimens collected at Coen, Queensland, which are herein considered to represent a previously undescribed species.

Key to the Australian Species and Races.

These species have proved difficult to key, few possessing an outstanding distinguishing feature. Also, the limited number of specimens available has

in many cases prevented determination of the stability of some features, and therefore their suitability for use in a key is in doubt.

1. Interparietal distinct 2
   Interparietal fused with frontoparietal ..... *rhomboidalis*
2. Dorsal scales smooth 3
   Dorsal scales keeled 7
3. Palpebral disk much larger than ear 5
   Palpebral disk equal to ear 4
4. Dorsal and lateral colouring uniform ..... *fuscum fuscum*
   Darker and/or lighter dorso-lateral stripes present ..... *fuscum variegatum*
5. 28 or less midbody scales ..... *novae guineae*
   30 or more midbody scales 6
6. Prefrontals separated ..... *maccoueyi*
   Prefrontals contacting or forming short median suture ..... *tetradactylum*
7. Majority of dorsal scales tricarinate 8
   Majority of dorsal scales bicarinate 12
8. Prefrontals separated on the midline 9
   Prefrontals forming a median suture ..... *triacantha*
9. Dorsal scales with simple keels 10
   Dorsal keels broken into series of points ..... *coense*
10. Palpebral disk much larger than ear ..... *pectoralis*
    Palpebral disk equal to ear 11
11. Dorsal and lateral colouring uniform ..... *fuscum fuscum*
    Darker and/or lighter dorso-lateral stripes present ..... *fuscum variegatum*
12. 28-32 midbody scales 13
    38-40 midbody scales ..... *vertebralis*
13. Palpebral disk much larger than ear ..... *vivax*
    Palpebral disk equal to ear ..... *bicarinatum*

Both *fuscum* and *pectoralis* show wide variation in the degree of keeling of the dorsal scales. Both the keeled and the smooth varieties of *fuscum* are included in the above key, but only the keeled variety of *pectoralis*. Apart from the fact that I have not seen a perfectly smooth scaled example of the latter species, the inclusion of this variety could not be made without greatly complicating the key. It has therefore been omitted, although its probable existence could be borne in mind when using this key for the identification of smooth scaled specimens.

LEIOLOPISMA FUSCUM FUSCUM (Dumeril and Bibron).

Heteropus fuscus Dumeril and Bibron, 1839, p. 759.
Heteropus schmeltzii Peters, 1867, p. 23.
Heteropus tricarinatus Meyer, 1874, p. 133.
Heteropus longipes Macleay, 1877, p. 66.
Heteropus sexdentatus Macleay, 1877, p. 67.
Heteropus maculatus De Vis, 1885, p. 169.
Heteropus rubricatus De Vis, 1885, p. 170.
Heteropus rostralis De Vis, 1885, p. 171.

Specimens examined: Northern Territory: U.S.N.M. 128612-128617, 128519, Yirrkala; A.M. R13583, 13584, 13656 (3 specimens), Cape Arnhem.

Queensland: Q.M. J7796, Iron Range, Cape York Peninsula; Q.M. J7778, South Percy Island, Northumberland Group; Q.M. J7790, Rockhampton (topotype of *H. schmeltzii* Peters); Q.M. J5639 Lindeman Island, Cumberland Group; Q.M. J7801, Archer River, Cape York Peninsula; A.M. J230 Cardwell (holotype of *H. rostralis* De Vis); S.A.M. R2969-2970, Port Douglas; M.M. R427, Endeavour River (holotype of *H. longipes* Macleay); M.M. R462-464, Cape Grenville (types of *H. sexdentatus* Macleay).

Variation: Midbody scales in 32 rows (3 specimens), 34 rows (12 specimens) or 36 rows (9 specimens). Dorsal scales obtusely trikeeled, tristriated, or perfectly smooth; occasional quinquecarinate scales on the nape. Four upper labials (five in A.M. R13584) anterior to the subocular. Ear opening vertically oval, of similar size and shape to the horizontally oval palpebral disk; auricular lobules very variable, varying from 3-5 short, acute lobules on the anterior border and 1-2 large but obtuse lobules on the posterior border to numerous acute lobules on all borders. Six or seven supraciliaries; 27-32 lamellae beneath the fourth toe.

In the Arnhem Land specimens the dorsal colouring is dark brown to olive without any sign of dorso-lateral markings in either juvenile or adult specimens, while in the Queensland material faint indication of a black dorso-lateral stripe is evident on the neck of several small specimens, and the dorsal colour has faded to grey in the long-preserved material.

Discussion: The presence or absence of dorso-lateral markings has been used as a key character for the separation of the eastern *(fuscum variegatum)* and western *(fuscum fuscum)* races in New Guinea. The Arnhem Land material agrees with the western race in possessing uniform dark brown dorsal and

lateral colouring, while those examined from islands in Torres Strait agree with the eastern race, possessing a light-edged black dorso-lateral stripe extending from the ear to above the shoulder, and part or all the way along the body. However, the task of satisfactorily stabilizing the subspecific names in this species is complicated by the Cape York Peninsula specimens, which have been described under various names by Peters, Macleay and De Vis. This material is shown to be intermediate between the New Guinea races, the juvenile colour pattern agreeing with the eastern race, while that of the adult is uniform as in the western race.

Accepting the adult colouration as standard, all Australian mainland specimens have been placed under *fuscum fuscum*, although some Cape York adults no doubt show sign of the dorso-lateral markings. Should the markings prove to be present in the greater majority of adult skinks from the vicinity of Rockhampton, *schmeltzii* Peters (1867) may be considered to hold priority over *variegatum* Macleay (1877) for the eastern race.

The type specimens of *schmeltzii*, *maculatus*, *rubricatus*, and the two smallest specimens of the *sexdentatus* types (M.M. R463-464) appear to have possessed some dorso-lateral markings.

A re-examination of Q.M. J230, the holotype of *Heteropus rostralis* De Vis indicates that the name should be placed in the synonomy of *fuscum* rather than that of *rhomboidalis*, to which it was doubtfully referred by Boulenger (1887, p. 285). De Vis (1887, p. 822) also recognized this, but retained *rostralis* on the grounds of its possessing strongly compressed toes. The dehydrated condition of the type specimen leaves doubt as to the value of this character.

LEIOLOPISMA FUSCUM VARIEGATUM (Macleay).

Heteropus variegatus Macleay, 1877, p. 66.

Heteropus quinquecarinatus Macleay, 1877, p. 67.

Heteropus cheverti Macleay, 1877, p. 67.

Heteropus luctuosus Peters and Doria, 1878, p. 364.

Lygosoma atrogulare Ogilby, 1890, p. 94.

Lygosoma nigrigulare Boulenger, 1897, p. 700, pl. vii, fig. 3.

Leiolopisma pullum Barbour, 1911, p. 15.

Leiolopisma fuscum digulense Kopstein, 1926, p. 88.

Specimens examined: M.M. R384-385, Barrow Island, Queensland (type specimens of *H. cheverti* Macleay); M.M. R389-391, Darnley Island, Torres Strait (type specimens of *H. variegatus* Macleay); M.M. R422-426, Darnley

Island, Torres Strait (type specimens of *H. quinquecarinatus* Macleay); Q.M. J1509, Darnley Island, Torres Strait; Q.M. J6438, Yorke Island, Torres Strait; J6445, Prince of Wales Island, Torres Strait.

Variation and Discussion. This race is not readily distinguishable from the type race on structural characters, although the present material suggests that it may possess a lower average of midbody scales and subdigital lamellae. This series shows a variation of 32 midbody scales (4 specimens), 34 midbody scales (10 specimens), 36 midbody scales (1 specimen); subdigital lamellae beneath fourth toe, 24-30. Dorsal scales weakly tricarinate; a few faintly quinquecarinate scales in the *quinquecarinatus* type series.

Colouration constant; markings less prominent in the fully adult specimens. The longitudinal stripes in the dorso-lateral region provide the only sure means of identifying this race without knowledge of the locality.

Loveridge (1948, p. 309, 361) was unable to diagnose the positions of *variegatus, quinquecarinatus* and *cheverti* from Macleay's short descriptions and therefore accepted *luctuosus* Peters and Doria (1878) as holding priority for this race. However, the present examination indicates all three of Macleay's names to be synonymous with *luctuosus* and hold priority over it. *Heteropus schmeltzii* (Peters, 1867) could hold priority for this race if Rockhampton skinks are shown to consistently retain their dorso-lateral markings to adulthood. (See discussion on the type race.)

Of the *H. variegatus* type series, M.M. R390 has been chosen as lectotype and the following detail compiled from it to supplement the type description. Axilla to groin measurement 1¾ times the forelimb to tip of snout length; when the limbs are adpressed along the body the fourth toe reaches the elbow. Midbody scales in 32 rows; dorsals and laterals weakly tricarinate. Ear opening vertically oval, its vertical diameter being equal to the horizontal diameter of the palpebral disk, which is half that of the ocular slit, three acute auricular lobules present on the anterior border. The fourth of seven upper labials largest, subocular; four supra-oculars; seven or eight supra-ciliaries. Length of the frontal equal to that of the fronto-parietal; internasal-frontal suture equal to one-quarter the internasal-rostral suture. Subdigital lamellae formula for hind limb, 16,27,18,14,8. No markedly enlarged anal scales.

Dorsal colour fawn, with a white-edged black dorso-lateral stripe commencing behind the eye and extending from above the ear to the shoulder and along the body to the hind limb, becoming less prominent posteriorly. The light lower border of the stripe passes through the ear.

Measurements: 128 (46 + 82) mm.

All three of the type specimens possess 32 midbody scales and 26 or 27 lamellae beneath the fourth toe.

The abovementioned *H. variegatus* types and those of *H. quinquecarinatus* appear to represent the juvenile and adult respectively of the Darnley Island population of this race. In two of the five *H. quinquecarinatus* types occasional scales could be considered quinquecarinate, but by far the greater majority are obtusely tricarinate, and except for the less prominent dorso-lateral stripes and the inconstancy of the upper labials, M.M. R422 possessing five labials anterior to the subocular on both sides and M.M. R425 on one side, these specimens show no features which could be used to separate them from the subadult *H. variegatus* types. The largest specimen, M.M. R422, measures 130+ (65 + 65+) mm.

The Barrow Island lizards described as *H. cheverti* by Macleay show similar variation, M.M. R384 measuring 132 (43 + 89) mm., possessing the dorso-lateral markings, while in M.M. R385 measuring 118+ (57 + 61+) mm. the dark stripe is only visible for a limited distance on the neck.

Loveridge (1948, p. 363) has keyed two additional races of this species, *jamnanum* Loveridge from Jamna Island, Dutch New Guinea, and *beccarii* (Peters and Doria) from Kei Islands, Dutch East Indies. In addition, he suggests that *leucotaenia* (Bleeker, 1860) from Ceram will prove to be a fifth race (? = *schlegelii* (Peters, 1864) from Amboyna and Timor).

LEIOLOPISMA VERTEBRALIS (De Vis).

Fig. 1.

Heteropus vertebralis De Vis, 1888 (1887), p. 821.

Lygosoma mundivense Broom, 1897, p. 643.

Lygosoma waitei Zietz, 1920, p. 211 (nom. nov. for *vertebralis* as preoccupied in *Lygosoma*).

Specimens examined. Queensland: Q.M. J248, Chinchilla, Darling Downs (one of the type series); Q.M. J4408, Townsville; S.A.M. R2967-2968, Irvinebank; S.A.M. R2958, R2966, Kaban.

From a comparison of its type description with the present material, *Lygosoma mundivense* Broom would appear to be synonymous with *vertebralis*.

Q.M. J248, one of the type series forwarded for examination from the Queensland Museum, has been designated the lectotype, and the following data and fig. 1 compiled from it. Midbody scales in 40 rows; four lower labials

anterior to the subocular; four supraoculars and seven supra-ciliaries. Dorsal and lateral scales mostly bicarinate, but with occasional tri- and quadricarinate scales, particularly towards the nape. Subdigital lamellae constant, 23 or 24 beneath fourth toe of the lectotype and 22-24 for the remainder of the material examined. Ear opening a little shorter than the transparent palpebral disk, almost round, with short acute lobules on all borders, the one or two on the anterior border being most prominent. The snout of this species is strongly depressed (see fig. 1).

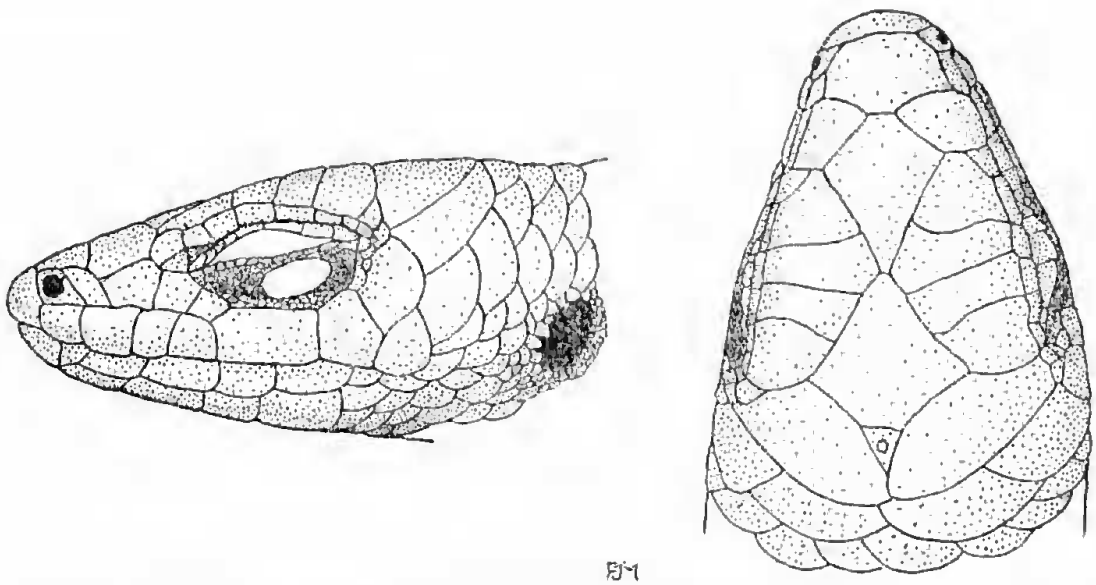

Fig. 1. *Leiolopisma vertebralis* (De Vis): dorsal and lateral views of the head of the lectotype (Q.M. J248).

Mr. G. Mack of the Queensland Museum kindly forwarded the following data on the remaining four specimens of the type series, "Dorsals bi-, tri- and quadricarinate, each keel being entire; laterals mostly bicarinate, but some tricarinate. Midbody scales in 23 rows (3 specimens) or 24 rows (1 specimen); lamellae beneath the fourth toe 23 (3 specimens) or 24 (1 specimen)."

The overall variation noted for the species is: midbody scales in 38 rows (5 specimens), 39 rows (2 specimens) or 40 rows (3 specimens); lamellar formula for the hind limb, 15-16, 22-24, 17-18, 13-14, 8; there is some variation in the percentage of tricarinate scales in the lateral region of the body.

The basic colouring of the recently collected South Australian Museum specimens is blue-green with the irregular darker patterning in the dorso-lateral and lateral regions defining a uniformly coloured vertebral stripe, comprising two adjacent series of pale blue scales. Ventral surfaces uniform pale blue.

LEIOLOPISMA COENSE sp. nov.

Fig. 2.

Leiolopisma vertebralis Loveridge (*nec.* De vis), 1934, p. 361.

Types: Holotype, M.C.Z. 37171 and one paratype, M.C.Z. 37170. Both specimens were collected at Coen in Northern Queensland by P. J. Darlington in May, 1932.

Diagnosis. Midbody scales in 36 or 38 rows; dorsal and lateral scales weakly tricarinate, each keel being broken up into a series of points (see fig. 3). Fifth upper labial largest, suboecular; palpebral disk a little smaller than the ear opening, which has 4 or 5 short rounded lobules on the anterior border. Subdigital lamellae of 4th toe, 30-32.

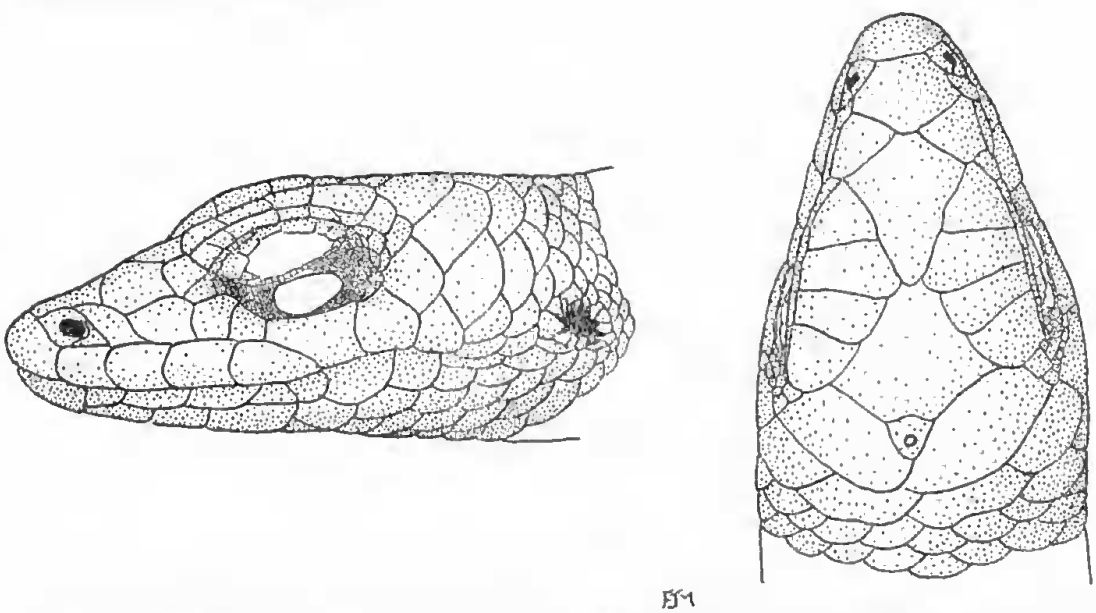

Fig. 2. *Leiolopisma coense* sp. nov.: dorsal and lateral views of the head of the holotype (M.C.Z. 37171).

Type description. Distance between the tip of the snout and the forelimb equal to that between the axilla and groin; when the hind limb is adpressed along the body the fourth toe reaches the axilla. Fronto-parietal single, interparietal distinct; prefrontals separated by a distance a little less than half the length of internasal-rostral suture. Four supra-oculars, seven or eight supraciliaries; one pair of enlarged nuchals; seven upper labials, fifth largest, suboecular. Transparent palpebral disk a little smaller than the ear opening, which has four short rounded lobules anteriorly. Body scales in 38 longitudinal rows at midbody; dorsals and laterals weakly trikeeled, each keel being broken into a series of points. Digits slender, lamellar formula for hind limb, 20, 30, 25, 17, 10.

The dorsal colouring is dark chocolate brown with five longitudinal series of light blue rectangular spots, an almost continuous middorsal series, one extending from the posterior border of each eye along the body above the limbs to a point approximately one third the way along the tail and one from each ear to the forelimb and along the side to the groin. The dorso-lateral stripes are continuous on the nape but break up on the body. Ventral surfaces near white.

The holotype measures 107 (42 + 65) mm.—tail complete, but damaged.

Paratype variation. Unfortunately, the paratype specimen is badly crushed about the head, but the scalation detail discernible indicates that it agrees closely with the holotype. Midbody scales in 36 longitudinal rows, each dorsal scale possessing three of the characteristically broken keels. The subdigital lamellae vary a little, the lamellar formula for the hind limb in M.C.Z. 37170 being 22, 32, 24, 18, 10. The size, shape and prominence of the auricular opening and lobules are constant, while the only significant variation in the colour pattern is a slight difference in the continuity of the middorsal stripe.

Affinities. Loveridge (1934, p. 361) confused this species with *vertebralis* De Vis, from which it differs in the nature and constancy of the trikeeling, larger size of the ear with less prominent lobules, greater number of subdigital lamellae and in colouration.

LEIOLOPISMA TETRADACTYLA (O'Shaughnessy).

Mocoa tetradactyla O'Shaughn., 1879, p. 300.

Specimens examined. Q.M. J2631-2632, Toowoomba, south-eastern Queensland.

Variation. The two specimens examined possess thirty smooth scales at midbody. Prefrontals contacting on the midline or forming a short median suture. Ear opening small, oval; vertical diameter equal to half the horizontal diameter of the palpebral disk, which is equivalent to one third the length of the ocular slit. One large auricular lobule anteriorly and small denticularions on each side. Limbs short, stout, the hindlimb lamellar formula for these specimens being 12-13, 18-21, 14-16, 11-13, 7.

LEIOLOPISMA MACCOOEYI (Ramsay and Ogilby).

Lygosoma maccooeyi Ramsay and Ogilby, 1890, p. 8.

Specimens examined. Q.M. J7775-7777, Dubbo, New South Wales.

Variation. Body scales smooth, in 30-32 rows at midbody. Ear opening small, round, without obvious lobules; much smaller than the palpebral disk. Prefrontals and nasals separated. The subdigital lamellae vary as follows: hindlimb formula 13-14, 21-23, 16, 11-12, 8; forelimb formula 7-9, 12-14, 14-16, 9-10.

LEIOLOPISMA BICARINATUM (Macleay).

Heteropus bicarinatus Macleay, 1877, p. 68.

Heteropus albertisii Peters and Doria, 1878, p. 362.

Leiolopisma albertisii Barbour, 1914, p. 204.

Leiolopisma peronii Barbour (*nec.* Dumeril and Bibron), *op. cit.*

Specimens examined. Queensland. Q.M. J7779, Dunk Island, Rockingham Bay; S.A.M. R2877, R2973, R2983, Cairns; S.A.M. R2974, R2979, R2980, R2985-2987, Palm Beach, near Cairns; S.A.M. R2976, Port Douglas.

Variation. Midbody scales in 30 or 32 longitudinal rows; each dorsal and lateral scale strongly bicarinate, the keels forming longitudinal lines along the body. Ear opening almost round, diameter equal to or a little smaller than the mean diameter of the palpebral disk; with numerous acute lobules on all borders. Four labials anterior to the subocular. Lamellar formula for the hind limb, 15, 28-30, 19-20, 13-14, 7-8.

A black-edged pearl-white dorso-lateral line commencing at a point above the ear in line with the supraciliary ridge and continuing along the body to above the hind limb is prominent in three of the specimens from Cairns and the one from Port Douglas, but is very faint or absent in all other material examined. The white line follows a single longitudinal series of scales, keeping between the two keels.

LEIOLOPISMA RHOMBOIDALIS (Peters).

Heteropus rhomboidalis Peters, 1869, p. 446.

Specimens examined. Queensland: Q.M. J2493, S.A.M. R2965, R2989, Innisfail; Q.M. J7785-7787, Herbert River Gorge; S.A.M. R2959, R2962, Tully; S.A.M. R2960-2961, R2963-2964, Lake Eacham; S.A.M. R2987, Mount Hypipawea.

This species is readily distinguishable from its allies by the fusion of the frontoparietals and interparietal into a single rhomboidal shield.

Variation. Midbody scales weakly tricarinate; in 32 or 34 longitudinal rows at midbody. Palpebral disk approximately equal in size to the ear opening, which has two or three short rounded lobules anteriorly. Subdigital lamellae somewhat irregular, the hind limb formula varying 15-17, 23-28, 18-21, 11-12, 7 in the specimens examined.

Some evidence of a light dorso-lateral line is evident in all specimens, the line generally starting behind the eye and fading into the basic body colouring about half-way along the body. In this species the line is approximately one scale wide, and runs between two series of scales, each scale being half white.

LEIOLOPISMA NOVAEGUINEAE (Meyer).

Lygosoma (Carlia) Novae Guineae Meyer, 1875, p. 132.

Lygosoma laeve Oudemans, 1894, p. 144.

Lygosoma aeratum Barbour, 1901, p. 7.

Specimens examined. Queensland: Q.M. J7791-7792, Iron Range, Cape York Peninsula; S.A.M. R2972, Palm Beach, near Cairns.

Variation. Midbody scales in 22-26 longitudinal rows; dorsal and lateral scales perfectly smooth. Ear opening smaller than the palpebral disk, but variable in both size and shape; in S.A.M. R2972 it is surrounded by long acute lobules almost concealing the opening, as in *aeratum*, while in the Iron Range specimens only one obtuse lobule is present on the anterior border.

Faint signs of a dark-edged light dorso-lateral stripe are evident on the anterior half of the body in the two Iron Range specimens.

LEIOLOPISMA VIVAX (De Vis).

Heteropus peronii Dumeril and Bibron, 1839, p. 760 (suppressed as a homonym in the genus *Lygosoma*).

Myophila vivax De Vis, 1884, p. 77.

Heteropus blackmanni De Vis, 1885, p. 168.

Specimens examined. Northern Territory (Arnhem Land): U.S.N.M. 128507-128510, Milingimbi Island, Croeodile Islands; U.S.N.M. 128257, Nightcliff, near Darwin; A.M. R13585 (4 specimens), R13586 (4 specimens), Cape Arnhem.

Queensland: Q.M. J7803, Noosa Heads, south-eastern Queensland; Q.M. J5640-5641, Lindeman Island, Cumberland Group; Q.M. J7772, Low Islands; Q.M. J7780-7781, Stannary Hills near Herberton; Q.M. J6328, J6332, Toogoom, via Torbanlea, North Maryborough; Q.M. J1308, Mount Coot-tha; Q.M. J7773, "No data, but probably one of the type series of *blackmanni* De Vis," which were collected at Port Curtis.

Variation. The Arnhem Land specimens displayed the following variation: Dorsal scales sharply bicarinate, becoming smooth or obtusely tri- or quadricarinate on the nape. Midbody scales in 28 rows (2 specimens), 30 rows (6 specimens) or 32 rows (4 specimens)—only the U.S.N.M. and S.A.M. specimens counted. Prefrontals narrowly separated or making point contact in the majority of specimens, but forming a definite median suture in two of the Groote Eylandt skinks. Interparietal very small; a single pair of enlarged nuchals. Seven

upper labials, fifth subocular. Ear opening variable in size, usually only about half the maximum diameter of the transparent palpebral disk; several short lobules anteriorly. The position of the posterior suture of the second supraocular is variable; this scale makes point contact with the frontal in several specimens. The frontal is fused with the frontoparietal in U.S.N.M. 128440. The subdigital lamellae counts show a variation of 22-26 for the fourth toe.

Metallic green to bronze dorsally with numerous, irregularly distributed, black-edged ocelli, recalling those of *Ablepharus lineo-ocellatus* Dum. and Bibr. Lateral surfaces light bronze; ventral surfaces white to pale blue; a black reticulate patterning along the ventro-lateral surfaces and under the throat of males.

The Queensland specimens examined showed similar variation, the significant points being: Midbody scales in 28 rows (1 specimen), 30 rows (6 specimens) or 32 rows (3 specimens); dorsal and lateral scales strongly bicarinate, becoming tri- or quadri-carinate, towards the nape; in some specimens as many as twelve distinct keels are present on the enlarged nuchals. Usually four labials anterior to the subocular, but occasionally only three, and in J5641, five. Ear opening noticeably smaller than the palpebral disk; with one or two rounded lobules anteriorly. The lamellar counts for the fourth toe are a little higher than those recorded for the Arnhem Land specimens, varying from 25-28.

The general colouration is more uniform and less metallic; little or no sign of the reticulate patterning in either sex. A light lateral stripe is faintly visible in three specimens.

LEIOLOPISMA PECTORALIS (De Vis).

Carlia melanopogon Gray, 1844, pl. vii, fig. 1 (homonym in the genus *Lygosoma*).

Heteropus lateralis De Vis, 1885, p. 168 (homonym in the genus *Lygosoma*).

Heteropus pectoralis De Vis, 1885, p. 169.

Heteropus mundus De Vis, 1885, p. 172.

Lygosoma devisii Boulenger, 1890, p. 79 (n.n. for *lateralis* De Vis as preoccupied in the genus *Lygosoma*).

? *Lygisaurus foliorum* De Vis, 1884, p. 77.

Specimens examined. Northern Territory: U.S.N.M. 128764, Oenpelli; U.S.N.M. 128528, Port Essington; S.A.M. R2696, R2699, R2703, Adelaide River; Q.M. J2619-2620, J7789, Darwin.

Queensland: Q.M. J1414, Port Curtis (holotype of *H. pectoralis* De Vis); Q.M. J234, North Pine River (holotype of *H. lateralis* De Vis); Q.M. J7782-7784,

Stannary Hills, near Herberton; Q.M. J2462, Herbert River Gorge; Q.M. J6287, J6329, Toogoom, via Torbanlea, North Maryborough; Q.M. J2403, Magnetic Island, off Townsville; Q.M. J7774, Gregory River.

Unfortunately the type specimen of *Lygisaurus foliorum* De Vis could not be located in the Queensland Museum and therefore its position remains in doubt.

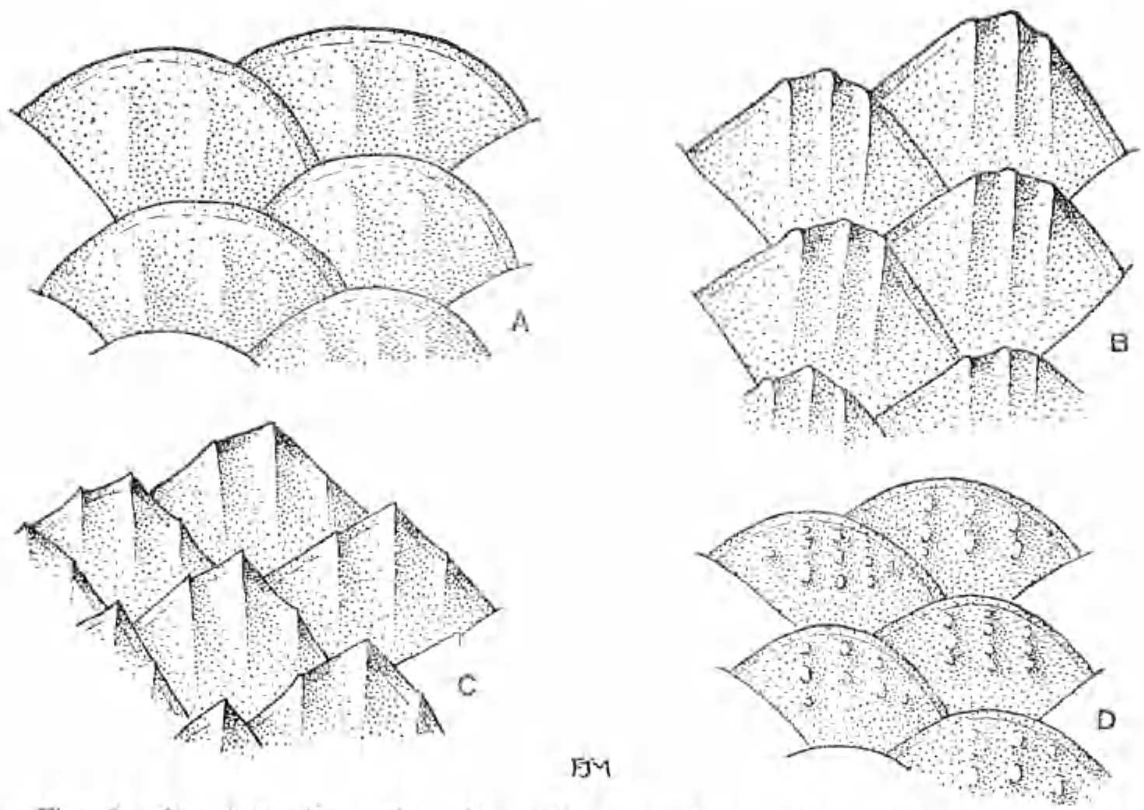

Fig. 3. Drawings illustrating the middorsal scales of (a) *Leiolopisma vertebralis* (DeVis); (b) *Leiolopisma pectoralis* (De Vis); (c) *Leiolopisma triacantha* sp. nov.; and (d) *Leiolopisma coense* sp. nov.

Variation. Midbody scales in 26 rows (U.S.N.M. 128764), 28 rows (3 specimens), 30 rows (11 specimens) or 32 rows (5 specimens). Four, occasionally five, upper labials anterior to the subocular, five to seven supraciliaries. Ear opening usually without prominent lobules, but one or two short rounded ones are evident on the anterior border in several specimens. An average lamellar formula for the hind-limb is 14, 24, 19, 11, 7, the specimens examined showing a variation of 22-29 in the number of lamellae beneath the fourth toe.

General colouration varying from uniform brown to grey-green with silver-grey dorso-lateral and occasionally lateral stripes. These longitudinal stripes are discontinuous in the Adelaide River specimens.

Q.M. J6287 is a gravid female containing two eggs. It measures 95+ (41 + 54+) mm.— tail incomplete.

Discussion. The specimens examined support the opinion of Loveridge (1934, p. 363) that *pectoralis* De Vis and *mundus* De Vis are synonymous with *melanopogon* Gray, and that this species shows wide variation in the prominence of the keeling on its dorsal and ventral scales, as does its near ally, *fuscum* Dumeril and Bibron. An examination of the type specimen of *lateralis* De Vis (Q.M. J234) indicates that the name belongs in the synonomy of this species rather than that of *peronii* Dumeril and Bibron (= *vivax* De Vis), to which it was doubtfully referred by Boulenger (1887, p. 286).

The holotype of *Heteropus pectoralis* De Vis (Q.M. J1414) was also re-examined and the following details were noted as being discrepant with the type description. The midbody scales are in 30 and not 32 longitudinal rows and there are eight upper and eight lower labials, five of the upper labials being anterior to the subocular. The colouring of the type has faded beyond recognition.

The type specimen of *Heteropus mundus* De Vis could not be located, but Q.M. J7774 was identified by De Vis as belonging to this species. It corresponds closely with De Vis' short type description, differing from the type of *pectoralis* in possessing only seven upper labials with four anterior to the subocular, and in lacking the distinct trikeeling on the dorsal scales, the only evidence of this being striations visible when the scales are viewed under oblique light. Midbody scales in 30 rows and subdigital lamellae 23-24 on the fourth toe in both specimens.

LEIOLOPISMA TRIACANTHA SP. NOV.

Holotype: S.A.M. R2697, a sub-adult male taken at Adelaide River, Northern Territory, and collected by Dr. R. V. Southcott, in June, 1943.

Paratypes: S.A.M. R2700, R2702, Adelaide River, Northern Territory; Q.M. J7788, Darwin, Northern Territory.

Diagnosis. Midbody scales in 30 or 32 longitudinal rows, each dorsal scale being strongly tricarinate and of characteristic form (see fig. 3). Ear opening without obvious lobules; approximately two-thirds the horizontal diameter of the palpebral disk.

This species appears to be most nearly allied to *pectoralis,* differing in the nature of the dorsal scales and in possessing a median prefrontal suture.

Type description. Distance between the end of the snout and the forelimb equal to that between the axilla and groin. Adpressed hind limb reaches a point between the axilla and the ear opening. Frontoparietal single; interparietal distinct; prefrontals forming a median suture equal to one third the

internasal-rostral suture. Four supraoculars, second largest and forming sutures with both frontal and fronto-parietal; six supraciliaries. Seven upper and seven lower labials, the fifth upper labial largest and suboeular. Ear opening crescent shaped, without obvious lobules on the anterior border, but with a denticulate posterior edge (see fig. 4); its horizontal diameter is two-thirds that of the palpebral disk. One pair of enlarged nuchals and a pair of enlarged anal scales present. Thirty-two rows of scales at midbody, the dorsals and laterals being strongly tricarinate, some middorsals incipiently trienspid; ventral scales mostly smooth although faint trikeeling is evident in some ventro-lateral scales.

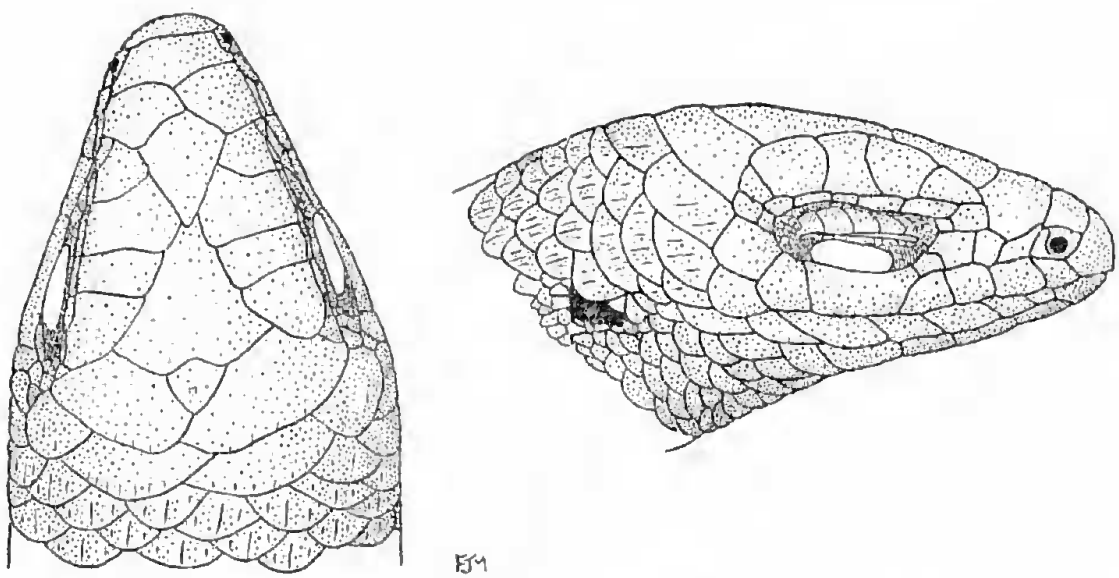

Fig. 4. *Leiolopisma triacantha* sp. nov.; dorsal and lateral views of the holotype (S.A.M. R2697).

Subdigital lamellae rounded, the hind- and fore-limb formulae being 14, 23, 17, 10, 7 and 11, 17, 15, 7 respectively. The reproduced section of the tail has laterally expanded upper caudals.

Measurements. 79 (36 + 43) mm.—tail reproduced.

Colour. The colouring of the type is iridescent blue-green dorsally with irregularly distributed black-pointed scales, these being most numerous on the tail. Ventral surfaces pearl-white.

Variation. The paratypes show few differences from the type. Midbody scales in 30 or 32 rows; 22-24 lamellae beneath the fourth toe. Seven or eight upper labials with the fifth constantly suboeular; six or seven supraciliaries. Median prefrontal suture constantly one-third the internasal-rostral suture.

SUMMARY.

The type specimens of certain species described by W. Macleay and C. W. De Vis have been re-examined and compared with 134 specimens from Queensland and Northern Territory in an endeavour to stabilize some of the scientific names and synonymies of species in this group. Numerous changes are made in the synonymies, and *Leiolopisma coense* and *Leiolopisma triacantha* are described and figured as new species. The lectotype of *Leiolopisma vertebralis* (De Vis) is also figured.

A dichotomic key has been constructed for the Australian species and races.

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